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Gardening in the Primary Grades

Flora J. Cooke

In April the Third and Fourth grades planned and constructed a hotbed twelve feet long and forty-one inches wide, and prepared it for use. To do this they were obliged to make a study of seeds, soils, and moisture, as outlined in detail in the April issue of the *COURSE OF STUDY*. (See Mrs. Atwood's and Miss Van Hoesen's nature study and number outlines for April.)

Each of the primary grades took as laboratory work some phase of the study of germination which the class was to investigate and report upon, the question in every case being to give the plants in the hotbed the best possible conditions for growth.

The seeds were placed under various conditions of temperature, soil, light, and moisture, and their development observed, recorded, and compared with that of the same kind of seeds under different conditions. That mode of expression was used—drawing, painting, or writing—which seemed best suited to illustrate the particular change that had taken place in the plant or seed.

In May the rate and the location of growth will be tested by placing ink-marks certain distances apart upon different parts of the plant and measuring the spaces after a short interval of time has elapsed.

The children will notice that some of the seeds planted come up more quickly than others with the same conditions. Seeking the reason for this will cause them to examine the seeds themselves, their coverings and the amount of stored-up food or energy which they contain.

EXPERIMENT. Force exerted by seeds in

swelling; cause of swelling. Energy contained in sprouting seeds. Allow the children, *under careful supervision*, to try to lift a 50-pound stone weight, using both hands.

EXPERIMENT. Place a small quantity of seeds (100 grams) in a cylindrical cup (a piece of iron pipe closed at one end will answer the purpose). Upon the seeds place another iron cup having a small hole in the bottom. The second cup should fit inside the first one and extend an inch or so above its top rim. Fill the second cup half full of water. Upon the top of the inner cup let a bar rest, upon which is hung the 50-pound weight.

The children will understand how the seeds can force their way through the soil when they see them under these difficulties swell sufficiently in one day to raise the inner cylinder $\frac{1}{8}$ of an inch from its original position. Thus their interest is directed to the real center of action—the stored-up energy—for the comparison of seeds.

Many of the children have gardens at home, and their experience will be utilized, as far as possible, in making inferences as to the proper treatment of our special plants, only those having been selected which would mature within two months—radishes, lettuce, onions, etc.

Their observations, however, will not be limited to these plants, and simple explanatory experiments will be suggested which the children can perform independently in answer to their questions, and they will be encouraged to report the results of their experiments to the class. They will probably discover: That certain weeds are stronger than our cultivated plants; that certain insects injure the plants; that certain plants need greater care than others; which parts of the plants develop first; use of roots and leaves, etc. They will learn, also, how different seeds germinate—

monocotyledonous, dicotyledonous, etc.; how they differ in their manner of growth, as bushes, climbing, creeping, and self-supporting plants; how they differ as to the edible parts, as root, stem, leaf, fruit, and seed.

The children will work in committees in caring for the contents of the hotbed; each committee being responsible for part of

the work, but receiving suggestions from all the other committees.

All the children took part in the preliminary work, in the reading of extracts and adapted notes from United States Agricultural Reports in the determination of the kind of seeds to be used, and in the effort to give them the best conditions for rapid development.

Literature for the Primary Grades

Gudrun Thorne-Thomsen

Pedagogic Class

What does it mean—that never-ceasing cry of our little ones, “Tell me a story”? What is this craving, and what satisfies it?

At the age of three a child enjoys hearing over and over again his daily experiences about animals, people, the locomotives, the street-criers. This world is not a commonplace affair to the child as it is to us. It is all full of wonders, and he yearns to know them.

At no other time are the nursery rhymes so much enjoyed as during this period; the rhythm, the music in the verse, undoubtedly are the great fascination long before the words mean anything. Here also belong the tales with which we all are acquainted in some form or other, the story of repetitions, a joke and nothing more; as, for instance, the story of the pancake, which will be told in next month's outline.

In this wonderful world nothing is too wonderful to the child, and animals talk and act like human beings; man is in fact one with the beasts and the trees.

The child knows his own power to will and to do; to his mind all other things that do, will to do, also; the wind, the sun, the trees, even sticks and stones, seem like himself powers that exert their will; that is why he punishes the chair that hurts him

or scolds the wind for blowing off his hat.

In this respect, as in so many others, we find the child nature like that of primitive man.

When the race was young, it knew but little about the laws of nature without and nature within self; but in the human soul was to begin an instinct of wanting to know; there were longings, hopes, and groping for the truth. Everything in man's environment asked him: How? Why? and demanded a reply. The reply is the literature of that day—myth and folklore.

The experience and wisdom accumulated by the race in the past found a lasting expression in the myth and fairy-story; here we have the innermost thoughts and feelings revealed, the religion and art of the time. The characters of the fairy-tale are simply variations of man's own self, and express his ideals and standards of right and wrong. The eternal struggle between good and evil is the great ever-recurring theme of the myth.

Why is it, then, that the child demands the story? It expresses his unconscious longings, hopes, and struggles. He demands that you speak to him in his own language, that you enter into his world with